DOCUMENT RESUME

ED 423 558 CS 509 902

TITLE	Reading the World Wide Web.
INSTITUTION	National Research Center on English Learning and Achievement, Albany, NY.
SPONS AGENCY	Office of Educational Research and Improvement (ED), Washington, DC.
PUB DATE	1998-00-00
NOTE	4p.
CONTRACT	R305A6005
PUB TYPE	Journal Articles (080) -- Reports - Evaluative (142)
JOURNAL CIT	English Update: A Newsletter from the Center on English Learning and Achievement; p2-3,7 Fall 1998
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Educational Research; Electronic Text; Higher Education; Hypermedia; Information Retrieval; *Information Seeking; Interviews; *Literacy; Models; Research Needs; Secondary Education; *Users (Information); *World Wide Web
IDENTIFIERS	Knowledge Acquisition

ABSTRACT

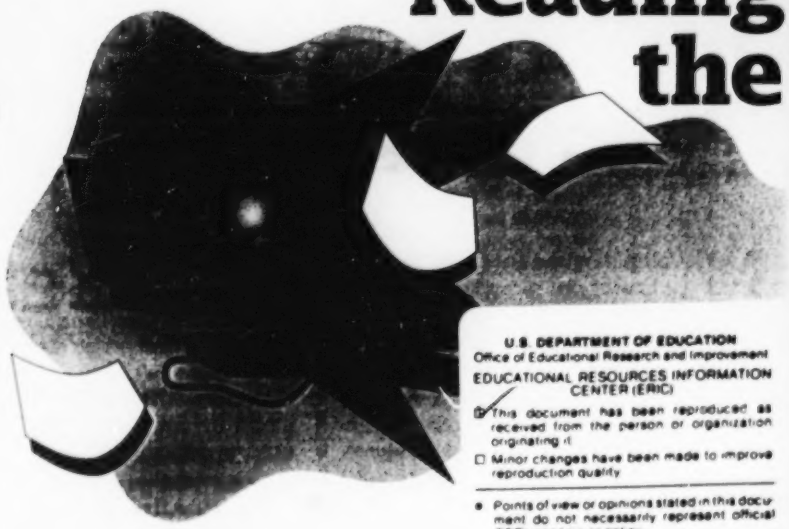
Given predictions that hypermedia will lead to meaningful changes in ways of knowing and how people make sense of the world, this question and answer paper discusses research conducted by the Technology and Literate Thinking group at the Center on English Learning and Achievement on how adult students make sense of information found on the World Wide Web. It presents preliminary findings in a model that is helping to frame further investigation into (1) new forms of literacy and literate thinking occasioned by electronic media; and (2) the processes people use when interacting with electronic texts and how these processes can be shaped by educators to maximize language and literacy development. Contains a figure illustrating the model that represents preliminary findings. (RS)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 423 558

"Reading the

GIVEN PREDICTIONS THAT HYPERMEDIA WILL LEAD TO MEANINGFUL CHANGES IN OUR WAYS OF KNOWING AND HOW WE MAKE SENSE OF THE WORLD, THE TECHNOLOGY AND LITERATE THINKING GROUP AT CELA IS CONDUCTING RESEARCH ON HOW PEOPLE MAKE SENSE OF INFORMATION FOUND ON THE WORLD WIDE WEB, TODAY'S ASCENDANT HYPERMEDIA ENVIRONMENT.



U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☒ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

To see how adults interacted with the computer when asked to find information on an assigned topic, Karen Swan and Joseph Bowman recently videotaped adult students searching the WWW.

The researchers have captured their preliminary findings in a model (Figure 1) that is helping to frame further investigation into:

- New forms of literacy and literate thinking that might be occasioned by electronic media, and how these forms are correspondent and/or incongruent with school beliefs concerning language and literacy development; and
- The processes people use when interacting with electronic texts, and how these processes can be shaped by educators to maximize language and literacy development.

CS 509 902

English Update recently asked Graduate Assistant Cheryl Schoonmaker to review the model and interview the researchers. Her discussion with Karen Swan follows:

CS: REFERRING TO THE MODEL THAT YOU'VE USED TO CONVEY WHAT YOU'RE LEARNING, HOW DID YOU DETERMINE THE SUBJECTS' PSYCHOLOGY, EXPERIENCE, AND COGNITIVE/SOCIAL/PHYSICAL CONTEXTS IN YOUR STUDY?

KS: They weren't just determined. What we're doing is protocol analysis, so we noted the users of the Web reacting to contextual things. We felt that we needed to consider at least three different contexts. The cognitive context is the task or whatever the person has in their head, and we observed people referring back to it, bringing themselves back: "Oh, the task is this," they'd say. The physical context is real easy to see because we were in a room, sometimes three of us, and this person thinking aloud. Sometimes they'd talk to us — part of the social context — at least the immediate social context in front of the computer screen. We haven't yet explored the broader social context of the Web itself. We're now creating a portable lab so we can go into schools, and then both the social and physical contexts will be more real, we hope.

CS: WHAT ABOUT THINGS LIKE THE READER'S EXPERIENCE? IN YOUR MODEL, THAT'S SEPARATE FROM WORLD WIDE WEB EXPERIENCE.

KS: That's their experience of the world. By psychology we mean their predispositions, their ways of behaving, as opposed to the set of things they've experienced, which is general experience. World Wide Web experience is more like a kind of knowledge, which we use here to include all computing experience, as opposed to domain knowledge, which is knowledge of the subject area that they're involved in. We're conducting grounded research. All parts of the model emerged out of the data, and we've only done one round of these observations. The model gives us something to start looking at.

CS: HOW DOES A USER'S GENERAL OR WORLD EXPERIENCE COME INTO PLAY?

KS: In some really strange ways. There was one guy who chose a site to go to because it was in Philadelphia. He's a Civil War buff and was thinking about Gettysburg. Some people go to a site as if they were going to a place.

CS: I ALSO WANT TO KNOW MORE ABOUT LINKING BY ASSOCIATION.

KS: Fifty years ago Vannevar Bush was F.D.R.'s science advisor. He's one of the guys who brought us the atom bomb. When the war was over, he wrote a paper called "As We May Think." In it — before there was really anything like the computers we have today — he said that what we really need is to do something good for the world. What he thought that scientists should concentrate on was dealing with information overload, which (even then) was a problem. He imagined a machine called the Memex (Memory Extension) that he saw as a mechanical device, like microfiche.

The World Wide Web has been built to Bush's specifications. He saw different media as extending our mental capacity. The thing he wanted from the Memex was linking by association. Just as print gives you something you can reflect on outside your mind, Bush thought that what was needed was something that goes beyond the kind of storage you get in libraries. There, you have to go to an index, find what you're looking for, go into the stacks, locate it, bring it back, and then read it; if you find a reference, you have to go back to the card catalogue and start over.

What Bush imagined, and

World Wide Web

what is totally possible on the Web, is that you see the reference, click on it, and you don't just go to the reference, you go to the article! You can actually check to see what it says and how it says it. Or, suppose something references the Mona Lisa. You can click there and see a picture of the Mona Lisa. Bush also talked about being able to use photographs and visual keys, and now you can even see the movie, right? That's linking by association, which Bush, Engelbart, Nelson, and others say is the way people think — a much more thought-like way to reference information. The Web allows you to relate diverse ideas all in one place, so it's non-linear.

A key finding of our research to date is that we didn't see our subjects making these kinds of connections, linking by association. None of them made use of the hyperlinking capabilities in Web documents during our observations. Instead, they would bookmark sites and in a fairly linear fashion explore the sites on their list, moving back and forth to the list rather than pursuing subsequent links. We also saw a lot of scanning and what we call "circling" of information — that is, they picked out key words and read the text immediately around them. All this requires further investigation. For example, was the linear approach we observed how they kept their focus on the task at hand, or simply a case of using old methods with a new medium?

CS: Do you think you would see different results if you varied the task, for example by letting them choose the topic? Are you working on that?

KS: One of the things we're thinking about doing is observing people working in on-line courses because they have a real purpose, a real task. There are links out [to other sources] and sometimes the links go to other links to links to links, so we are curious to see if people actually follow those links or not. We would like to use our portable lab with a project at RPI [Rensselaer Polytechnic Institute]. This is an NSF [National Science Foundation] project designed to link concepts in calculus to courses that use calculus and engineering and science. We want to see if people actually follow these links, and when they follow them, and why they follow them.

Another place to look might be with kids. In a lot of the courses these days, kids are searching for information, and it will be interesting to see if they follow from one site to another. McLuhan says that people will use a new medium in the ways that they're used to using the old medium, before it really settles in and people know what to do with it, so maybe that's what we're seeing.

Another consideration is that almost all the commercial Web sites are dead ends. They don't send you out anywhere the way information and university sites like ours do.

CS: Do you think use of the World Wide Web could change how people read and write printed texts?

KS: I think it already is. If you look at almost anything in print these days (*Newsweek* magazine, for example), it's windowed. It's got extra references in the margins. Information everywhere is becoming more windowed — more multilayered in ways that resemble the Web. If you look at other media like TV, it's got writing across it. Things are starting to look and feel a lot different. Information is being graphically organized in ways that are very meaningful.

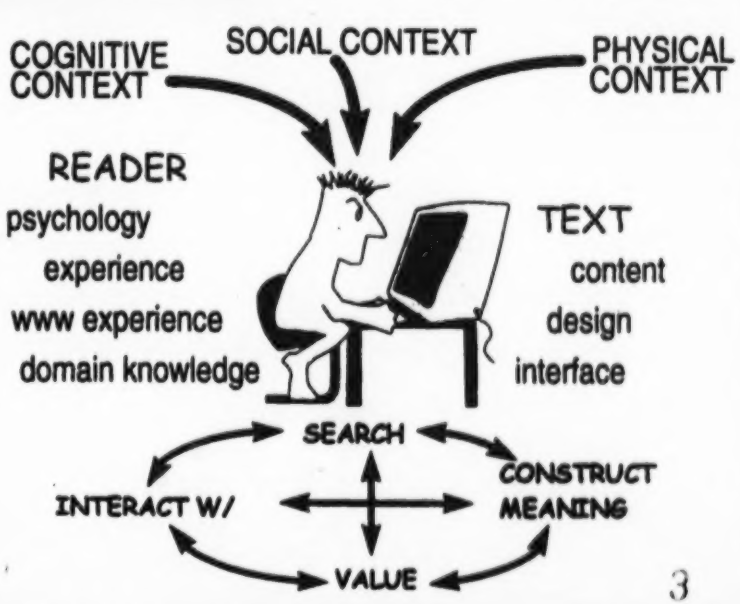
In a lot of cases it's junk. If print doesn't carry information, it's junk. If it carries information, it's valuable. Sometimes pictures really don't illustrate what they're supposed to be illustrating, and sometimes they do. The charts that you see in *USA Today* are pretty horrible, but you're seeing a lot more charting of information, or boldfacing if it's important — graphically organizing things spatially so you know how one thing is related to another. That's linking by association.

CS: I've also heard you say that World Wide Web documents lack the authority of printed texts. Why do you say that?

KS: By authority I mean author-ity. A printed document many times has gone

See World Wide Web on page 7

FIGURE 1 "READING" THE WORLD WIDE WEB



World Wide Web from page 3

through peer review; it probably has at least gone through an editing process and is in some ways substantiated. Most publishers check information before they put it out. With Web documents, you don't even know if they're legitimate. They could be multiply authored. They could be fake. They could contain horrendous information. There's all kinds of wonderful and horrible things out there. I'm not sure that's a bad thing, because it invites us to not take all documents at face value. I think it's a good thing to question author-ity.

CS: How do you feel the Internet could impact the reader/writer relationship? You think it makes people more critical?

KS: I think it means that people are going to have to think about what they know and what a document is saying and where it's coming from and all those kinds of things that maybe they don't now, and I hope they'll carry that questioning back to print, as well.

Suggestions for Further Reading:

Bolter, J.D. (1991) *The Writing Space: The Computer, Hypertext and the History of Writing.* Chapel Hill, NC: University of North Carolina Press.

Bush, V. (1945) "As we may think." *The Atlantic Monthly,* July, 1945, 101-108.

Engelbart, D.C. (1963) "A conceptual framework for the augmentation of man's intellect." In Howerrton, P.W. & Weeks, D.C. (Eds.) *Vistas in Information Handling,* Vol. 1. Washington, DC: Spartan Books, 1-29.

Langer, J.A. (1995) "Literature and learning to think." *Journal of Curriculum and Supervision,* 10, 3, 207-226.

McLuhan, M. (1964) *Understanding Media: The Extensions of Man.* New York: New American Library.

Nelson, T.H. (1967) "Getting it out of our system." In Schechter, G. (Ed.) *Information Retrieval: A Critical Review.* Washington, DC: Thompson Books.

Tapscot, D. (1997) *Growing Up Digital: The Rise of the Net Generation.* New York: McGraw-Hill.